

Reg. No

Name

24P4019

M. Sc. DEGREE END SEMESTER EXAMINATION - MARCH 2024

SEMESTER 4 : BOTANY

COURSE : 21P4BOTT14 : GENOMICS, PROTEOMICS AND BIOINFORMATICS

(For Regular 2022 Admission & Supplementary 2021 Admissions)

Duration : Three Hours

Max. Weights: 30

PART A

Answer any 8 questions

Weight: 1

1. Explain function driven metagenomics. (A, CO 4)
2. List the findings of human genome project. (R)
3. Write a short note on orthologs with examples. (U, CO 4)
4. What is the significance of gene annotation in functional genomics? (U, CO 3)
5. Provide the practical significances of drug designing. (U, CO 4, CO 5)
6. Write a note on sequence submission in NCBI Genbank. (A, CO 5)
7. Write a note on factors affecting molecular Phylogeny. (U, CO 4, CO 5)
8. Discuss about the need and applications of ORF finder? (U, CO 5)
9. How is proteome differ from genome? (U, CO 4, CO 5)
10. Give the significance of apyrase enzyme in pyrosequencing. Provide the stage of application of this enzyme in the sequencing reaction. (U, CO 2)

(1 x 8 = 8)

PART B

Answer any 6 questions

Weights: 2

11. Discuss about Real time quantitative PCR and its use in detecting diseases. (U, CO 3)
12. What are the two approaches used in metagenomics? (U, CO 4)
13. Briefly explain the procedure and applications of chromatin immunoprecipitation sequencing. (A, CO 3)
14. Discuss about Exome sequencing and expression profiling. (U)
15. What are the characteristics of a good genetic marker? (U, CO 2)
16. Explain the hierarchal shot gun sequencing. (R, CO 1, CO 2)
17. What is the significance of protein expression analysis? (U, CO 3, CO 4, CO 5)
18. Explain Smith-Waterman Algorithm in detail? (U, CO 5)

(2 x 6 = 12)

PART C

Answer any 2 questions

Weights: 5

19. Explain various types and methods of sequence analysis and sequence comparison. (U, CO 5)
20. Describe the importance of bioinformatics in structural, functional and comparative genomics. (A, CO 1, CO 2, CO 3, CO 5)

21. Explain how to retrieve a set of sequence and study the evolutionary trajectory. (A, CO 4, CO 5)
22. Discuss about various techniques used for the determination of gene functions. (A, CO 3)
- (5 x 2 = 10)**

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Compile and explain the history of genomics and the revolution happened in the field	U	16, 20	7
CO 2	Distinguish the ancient and modern techniques to understand the structural features of genome	A	10, 15, 16, 20	10
CO 3	Elaborate the modern principles of functional genomics	An	4, 11, 13, 17, 20, 22	17
CO 4	Simplify the evolutionary studies using the genomics tools and appraise the social and ethical issues with a scientific temper	E	1, 3, 5, 7, 9, 12, 17, 21	14
CO 5	Formulate the genomic studies using the fundamentals of bioinformatics	A	5, 6, 7, 8, 9, 17, 18, 19, 20, 21	24

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;